Start me up: the effectiveness of a self-employment programme for needy unemployed people in Germany

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Contents

Abstract

In recent years activation of means-tested unemployment benefit recipients has become a major issue of European labour market policy. We study the effect of participation in a new business start-up scheme for needy unemployed people in Germany. The programme was introduced at the beginning of the year 2005 together with a new means-tested benefit system. We used data from administrative records to draw a sample of needy participants who entered the programme from February to April 2005 and of an adequate control group. Even though these data are quite rich in terms of information on the labour market performance and individual and household characteristics, they do not provide information on unsubsidised self-employment. Therefore, using matching methods we estimate the impact of the programme participation on the outcomes “neither being registered as unemployed nor as a job-seeker” and “no receipt of unemployment benefit II”. Our estimates imply that even by the time when nearly no participant receives the start-up subsidy any longer treatment reduces considerably the proportion of registered job-seekers and of means-tested benefit recipients among the treated. Moreover, there is no substantial variation of these effects over different population groups.

JEL classification: C13, H43, J68

Keywords: Propensity score matching, treatment effects, evaluation of active labour market policy, start-up subsidies, means-tested benefit recipients

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1 Introduction

Due to high and persistent unemployment in the last years German labour market policy reforms concentrated to a large extent on activation policies.[1] One of the reforms was implemented with the introduction of the Social Code II. A new means-tested benefit, the unemployment benefit II (UB II), was introduced at the start of the year 2005. It replaced the two former means-tested benefits, unemployment assistance and social assistance. The reform emphasises activation policies.

One of these activation policies is a subsidy to take-up jobs, the so called "Einstiegsgeld". It may be granted to needy unemployed both for starting their own business as well as for entering contributory employment. However, in the year 2005 the latter option made up for less than 15 percent of the programme starts. Therefore, this paper deals only with effects of Einstiegsgeld as a start-up subsidy on participants.

We study whether participation in the scheme improves the labour market performance of participants. The start-up subsidy can be paid for up to 24 months, though usually is received for much shorter periods. In 2005 less than 20 thousand people started the programme, which was a low number compared with an average stock of about 2.8 million needy unemployed. The inflow into the Einstiegsgeld start-up scheme is also low compared with the inflow into two start-up programmes for unemployment insurance (UI) benefit recipients, the bridging allowance and the "Existenzgründungszuschuss" with more than 150 thousand and more than 90 thousand programme starts in 2005, respectively.

There are various reasons to believe that many potential needy entrepreneurs did not receive the subsidy. First of all the UB II agencies who have to grant the subsidy were just set-up at the start of the year 2005 with partly inexperienced staff and a huge task of implementing the reform. Moreover, the start-up programme was new and case managers had no experience with implementing it. For these reasons it is likely that a large number of UB II recipients who potentially could have set-up their own business were not entitled to the subsidy.

Our study estimates the effect of programme participation using matching methods. The effects are estimated for the inflow into the self-employment scheme during the months February to April 2005. We only regard programme participants if they were unemployed on 31st January 2005 and received UB II at that time. The potential control group members stem from a 20 percent random sample of needy persons in the UB II unemployment stock at the end of January 2005. Of course we excluded all

[1] A comprehensive description of recent institutional changes of German labour market policy can be found in Jacobi and Kluve (2007). These reforms are well known in Germany as the Hartz reforms, as many of them were proposed by a commission that was led by Peter Hartz, head of the personnel executive committee of Volkswagen.

people from the stock of needy unemployed, who entered the self-employment programme from February to April 2005. However, controls may enter this programme at later points in time. Hence, we estimate the effect of joining the programme from February to April 2005.

In contrast to most evaluation studies that estimate programme effects with administrative data, we can incorporate considerable information on the household of programme participants and control individuals. With the introduction of the Social Code II and a related new data collection system at the local unemployment benefit II agencies for the first time administrative micro data on all members of needy households is available in Germany.[2] In turn any member of an UB II recipient household can be tracked over time. Hence, for our treatments and controls also data on their partners or other household members on employment, unemployment, active labour market programme participation or benefit receipt from other administrative data sources can be retrieved for our analysis.

We are mainly concerned with effects of programme participation on the outcomes neither registered as unemployed nor job-seeking and no UB II receipt. Unfortunately we cannot focus on an outcome like unsubsidized self-employment, which would be best suited to evaluate the success of the start-ups. This piece of information is not available in the administrative data. But the two outcomes we focus on provide some evidence on whether due to the subsidy participants were integrated successfully into the labour market.

The paper is structured as follows: Section two describes the institutional set-up of the new unemployment benefit II and of the Einstiegsgeld programme. In section three, we provide a short literature review on the effectiveness of self-employment programmes in Germany. Section four discusses theoretical considerations for our analysis together with some key hypotheses of our study. The methods and data are described in section five. We discuss the results of our analysis in section six and briefly summarize and conclude in section seven.

2 Institutional Framework

With the introduction of the Social Code II at the start of the year 2005 major reforms of the German unemployment compensation system came into force (the so called “Hartz IV”-reforms). A new means-tested benefit system was introduced: The unem-

[2] Before the year 2005 administrative micro data of the Federal Labour Agency contained information on unemployment assistance recipients, but not on the members of their needy household. Systematic administrative micro data on social assistance recipients from all municipalities, which were responsible for this benefit scheme, were not available. With the exception of 69 municipalities, since 2005 the Federal Labour Agency and municipalities are jointly responsible for the new benefit scheme, such that register data of the local UB II agencies are comparable and moreover contain information on all members of the needy household.

ployment benefit II (UB II) replaced the former means-test unemployment assistance (UA) and social assistance (SA) for needy people who are capable of working.[3,4] The reform did not generally cut benefit levels for needy households.[5] The central idea behind introducing the Social Code II was to activate needy people, so that more of them are integrated into the labour market and their benefit dependency is reduced. This is of particular importance for people who without the reform would have received SA benefit as well as for people who would have been partners or other household members of a UA benefit recipient. Without the reform such people would not necessarily have been in contact with labour agencies, registered as unemployed or as job-seekers nor would they have qualified for many types of active labour market policies. Due to the reform this has changed. Each member of a needy household, who is capable of working, is supposed to contribute to reducing the dependency on the means-tested benefit.

The Social Code II demands efforts of unemployed persons with regard to job search and other activities to improve their chances of finding a job. Integration contracts and benefit sanctions for those who do not comply to the rules are instruments to raise such efforts. On the other hand, the reform provides more possibilities of assisting unemployed persons towards employment take-up and in particular lead to more intensive active labour market policies.

In order to provide financial incentives to UB II recipients to take-up regular jobs, together with the Social Code II the so called “Einstiegsgeld” programme (Article 29 Social Code II) was introduced. The UB II agencies have the possibility to provide a temporary supplementary benefit to UB II recipients both for starting a contributory job as well as for starting-up their own business. According to Article 29 Social

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3 The old unemployment insurance (UI) benefit was labelled as unemployment benefit I. It is earnings-related with a replacement rate of 67 percent of the last net income for a parent and 60 percent for childless people. The UI benefit in contrast to UB II is time-limited, where the length of receipt increases with the time a recipient has contributed to unemployment insurance within a period of seven years prior to the benefit claim. The maximum duration of UI receipt though depends on age and was one year for those aged younger than 45 in the year 2005. It increased for older age groups and those older than 56 years could even receive their UI benefit up to 32 months. The maximum UI entitlement lengths of those older than 44 years though were considerably reduced in the year 2006.

4 People who are aged between 15 and 64 years and can work under the usual conditions of the labour market for at least three hours a day are regarded as capable of working. Only due to an illness or disability, it is possible not to fulfil this criterion (Article 8 Social Code II).

5 Blos and Rudolph (2005) showed in a simulation study based on micro data from an income and consumption survey how the benefit levels of former social assistance recipients and former unemployment assistance recipients were affected by the benefit reform. It did not much affect benefit levels of households of former social benefit recipients. However, about 17 percent of former unemployment assistance recipients no longer qualified for the new means-tested benefit. Of those former unemployment assistance households, which qualified for UB II, about 50 percent faced benefit reductions and 50 percent a benefit increase.

Code II, the benefit can be paid for up 24 months. The level of the benefit should depend positively on the previous unemployment duration of the recipient as well as the size of the needy household.

The Social Code does not explicitly regulate the implementation of the programme. It does not even state an upper cap for the Einstiegsgeld benefit. However, a manual of the Federal Employment Agency (Federal Employment Agency, 2005) does specify how the UB II agencies are supposed to implement this discretionary programme.[6] It specifies the Einstiegsgeld benefit level in relation to the base UB II, which in the year of the introduction of the Social Code II was 345 Euro per month in West Germany and 331 Euro per month in East Germany.[7] According to the manual the Einstiegsgeld benefit should amount to 50 percent of the base benefit plus ten percent of the base benefit for each additional member of the needy household. It should even be higher provided that the programme participant was unemployed for at least two years and/or is a person that for other reasons is hard to place. The base benefit level itself is the upper cap of the supplementary benefit.

Whether these rules on the benefit level were implemented during the year 2005 is not entirely clear. Noll, Wolff and Nivorozhkin (2006) studied this question with administrative micro data of the Einstiegsgeld participants and found some evidence for it. Nevertheless, their study remained largely inconclusive, since the data of this early period was characterised by more than 35 percent missing values for the level of the Einstiegsgeld subsidy. As this study also relies on these data, we cannot provide a more precise statement for the period under review.

The manual of the Federal Employment Agency also recommends that the supplementary Einstiegsgeld benefit should only be paid to UB II recipients who take up a contributory job of at least 15 working hours weekly or start-up a business as their main occupation. The objective behind that restriction is to promote only employment that leads the needy household out of benefit receipt.

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6 For a detailed description of the implementation of the programme in the year 2005 see Noll, Wolff, and Nivorozhkin (2006).

7 These are the numbers for a lone adult or lone parent. The base benefit in East Germany was raised to the Western level in July 2006. On top of the base benefit there are additional elements in the unemployment benefit II formula: Needy households receive a benefit that covers the costs of accommodation and heating. Moreover, for former UI recipients an additional benefit is paid during the first two years after exhausting UI. This additional benefit is related to the difference between the sum of the former UI and housing benefit receipt and the UB II benefit level. It amounts to two thirds of this difference in the first year after running out of UI receipt. However, there is an upper cap for the additional benefit of 160 Euro for singles and 320 Euro for partners. For each child that lives in the needy household of a person who is eligible for the additional benefit, the upper cap is raised by 60 Euro. In the second year after exhausting UI benefit receipt the additional benefit is cut by 50 percent.

The inflow into the Einstiegsgeld programme is relatively low. Table 1 presents the average unemployment stock of UB II recipients and the inflow into the programme over the period 2005 to 2007. The figures in Table 1 exclude 69 municipalities, which in contrast to most municipalities administer the UB II on their own and not together with the Federal Labour Agency. About 15 percent of needy unemployed people belong to these municipalties. The inflow into the self-employment scheme ranges from about 17 to more than 32 thousand per year. The number of programme starts is even lower as far as we regard the Einstiegsgeld for starting contributory employment. The annual average unemployment stock of UB II recipients instead amounts to about 2.2 to 2.4 million people. The number of programme starts is also quite low when we compare it to the largest programmes. One-Euro-Jobs, a workfare scheme for UB II recipients, is characterised by an annual inflow of 600 up to more than 700 thousand people and a short-term training programme by an annual inflow of about 400 to 440 thousand.

The low number of programme starts may have various reasons. One reason is that the programme was entirely new. For this reason the staff in the UB II agencies had no past experience with selecting potential participants and administering the programme. That the inflow into the programme is particularly low in the year of its introduction is in line with this hypothesis and suggests that the UB II agencies experimented with the programme prior to implementing it at larger scale. However, there are other reasons for the low inflow into the into the self-employment scheme. It may be that there is only a small number of needy unemployed who are actually likely to successfully start their own business. And credit constraints that would be binding for many poor households even concerning additional financial means of the start-up subsidy may also play an important role in explaining the low inflow. Finally, there may be a sorting effect: During UI receipt currently another start-up scheme and in the year 2005 even two such schemes were available to unemployed people. In contrast to Einstiegsgeld these subsidies have to be granted provided that the UI recipient can provide a solid business plan that is approved by a chamber of commerce.[8] Therefore, there may be an incentive to apply for such a scheme prior to losing UI receipt and becoming needy.

[8] During the period that we analyse there were two start-up schemes for UI recipients: the "start-up subsidy" (Existenzgründungszuschuss) and the "bridging allowance'" (Überbrückungsgeld). The start-up subsidy paid a benefit for three years. During the first year it was 600 Euro per month. The subsidy decreased to 360 Euro per month in the second and 240 Euro per month in the third year. The bridging allowance in contrast subsidized a start-up for a shorter period of time. The subsidy was paid for six months and is equal to the previously received unemployment benefit (plus a lump sum to cover social security contributions). Both programmes were characterised by a far larger inflow than the Einstiegsgeld scheme, e.g., in the year 2005 the inflow into the bridging allowance amounted to 157 thousand people, while for the start-up subsidy the corresponding number was 91 thousand people. For a detailed description of these programmes see Baumgartner and Caliendo (2007). They were merged to a new start-up subsidy labelled as

3 Literature Review

The evaluation of treatment effects of start-up subsidies received a relatively limited attention in the economic literature. Recent international evidence includes studies conducted in the UK, New Zealand, Spain, and Germany.

Meager et al. (2003) for the case of the UK conclude that the start-up programme offered to young males did not produce any visible effect. The comparison group was selected based on age, gender, region and employment status. Participation in the program did not increase earnings and reemployment potential compared to non-participation.

The impact of participation in the half-year start-up programme in New Zealand is analysed by Perry (2006). The author adopts a difference-in-difference framework together with propensity score matching to analyse differences in the probability of re-registering with the public employment office two years after the programme start. The main conclusion of the author is that participants of the programme were less likely to re-register with the public employment office.

The analysis of the business start-up schemes in Spain is limited to one region. Cueto and Mato (2006) analyse survival rates of the subsidised firms distinguishing between exits due to business failures and exits to contributory employment. The authors find that after five years the survival rate of subsidised firms is equal to 76%. The drawback of the study is that there is no control group and thus the study does not meet basic evaluation criteria.

Besides the above mentioned studies there exists a rapidly growing area of business start-up evaluations in Germany. Early research included studies by Pfeiffer and Reize (2000) and Reize (2004). Pfeiffer and Reize (2000) compare the survival probability of firms of unemployed people who started their business receiving a start-up subsidy with that of a control group of firms started by unemployed people who did not receive the subsidy by the public employment office. The authors consider regional heterogeneity and thus conduct separate analyses for East and West Germany. The results of the study imply that subsidised firms in East Germany had lower chances of survival compared with unsubsidised ones. At the same time no significant relationship between subsidies and firm survival was found in West Germany. Reize (2004) analyses transitions in and out of unemployment and concludes that comparing to other exits out of unemployment individuals who started their businesses after a period of unemployment had the lowest chance of registering with the employment office again.

"Gründungszuschuss" by the mid of the year 2006. This new scheme pays as a start-up subsidy the UI benefit plus a lump sum of 300 Euro per month; the latter sum is intended to cover health insurance cost. The entitlement length of the subsidy is nine months. The receipt may be prolonged for another six months.

Recent results on the evaluation of the German start-up programmes for the unemployed are presented in Baumgartner and Caliendo (2007). Two programmes were analysed: the start-up subsidy and the bridging allowance as described in section two. An important feature of both studies is that the authors use registry datasets combined with a follow-up survey. The information was collected for unemployed people who entered the business start-up programme in the third quarter of 2003 and a group of eligible non-participants. Baumgartner and Caliendo (2007) adopt a propensity score matching estimator to estimate the earnings and employment effect. The results indicate that the programmes produce a significant and large gain in terms of earnings and the employment probability of the treated. The results are however heterogeneous, the effect is particularly pronounced for men. As a final part of the exercise the authors conduct a simple cost benefit analysis and conclude that both start-up programmes are effective and the bridging allowance also an efficient policy tool.

Caliendo and Kritikos (2007) look at the survival rates of the subsidised firms and find that the probability of the firm survival after 2.5 years after business founding is quite high, around 70%. At the same time the authors observe considerable heterogeneity in the characteristics of the entrepreneurs which influence their success. It should also be kept in mind that the results for the evaluation of the start-up subsidy are preliminary since the participants of this programme still receive the subsidy 2.5 years after starting their business.

The presented studies report considerable differences in the effect of the start-up schemes. A comparison of the results is complicated due to the different institutional set-up in different countries, different time periods and macroeconomic conditions. Our paper aims to extend the knowledge about the treatment effect of start-up schemes for the unemployed in Germany by regarding needy unemployed and a new start-up scheme that is only available to them. In the following section we will outline some theoretical considerations and present hypotheses of our study.

4 Theoretical Considerations and Hypotheses

Government interventions such as provision of start-up subsidies to the unemployed and social benefit recipients may be justified because of the existence of the market imperfections. Market imperfections may lead to the underinvestment problem, a situation in which viable businesses would not be funded.

Poor unemployed people and hence especially recipients of the means-tested benefits are usually credit constrained. If access to credit is limited but "bad" jobs are easy to come by, then job seekers may choose to get an undesirable job instead of opening a business (Browning et. al, 2007).

Start-up subsidies are also important from the social point of view since the entrepreneur values only its own private return and does not take into account public

benefits of new business creation, such as: creation of additional work places, developing entrepreneur culture in the country.

Besides the desired effects of the business start-up schemes like enabling unemployed people to become self-employed and integrating them more rapidly into the labour market, some adverse effects can occur. Among them is a deadweight loss and displacement effect. These effects can occur if start-up subsidies drive existing firms out of the market or prevent the start-up of unsubsidised firms. These effects are likely to be pronounced since it is likely that most of the businesses which are created with the assistance of the start-up subsidy are in the low cost service sector.

Moreover, locking-in effects can arise, that reduce efforts made by unemployed persons to search for alternative better jobs. While participating in the business start-up scheme, a person's search efforts decrease, e.g., because participation reduces the time available for job search. Furthermore participation can reduce the motivation to look for employment, because participants derive some subjective utility from programme participation, e.g., due to carrying out a useful task. Job search efforts can already decline before participation started if the unemployed person knows about his participation in advance (“Ashenfelter’s Dip”).

Thus, the actual effect of the start-up subsidy on the labour market performance of needy participants is not a priori clear. It has to be quantified by econometric research. For a number of reasons there should be groups of unemployed people for which this particular programme is likely to be effective or ineffective. Let us discuss some specific hypotheses, which our analysis is going to address.

A specific focus in our evaluation of the business start-up scheme is on the future employment and unemployment outcomes of the participants. We expect the proportion of regular contributory employed programme participants to be relatively low, since the aim of the start-up subsidy is to reduce unemployment by promoting self-employment. Hence, there are negative treatment effects on the outcome regular contributory employment. Moreover employers possibly do not regard start-up programmes as equivalent to regular employment or other forms of qualification (stigma effect). Creaming may be one of the reasons why beneficial effects of programme participation could be weak or absent and adverse locking-in and stigma effects dominate. This may be the case for groups of people with relatively good chances of finding a regular contributory job, e.g., people with high qualifications, people who are young or who only recently lost their jobs.

Finally, the effects on avoiding benefit dependency, i.e., on the probability of “no UB II receipt” are a priori unclear. Given that non-participants have more time to search for a job, they may be choosier with respect to wage offers and achieve higher earnings in their jobs than the participants do with their start-up. Moreover, it is possible that only after a longer period of time the income of the entrepreneur will become high enough, such that he no longer passes the means-test, than for com-

parable non-participants. In turn the effect of Einstiegsgeld on the probability of avoiding UB II receipt of the treated may be negative for quite some time after programme start, while the effect in the long run is ambiguous. But it may be push-factors that drive needy unemployed people to start their own business. I.e., there is an insufficient number of contributory job offers available to them and they are mainly low-wage and partly unstable jobs. In turn their start-up provides them with higher earnings than alternative jobs and we would expect the probability of "no UB II receipt" to be higher for the participants on the business start-up programme than for comparable non-participants. This should hold also after participants no longer receive their subsidy. In turn, we would also expect that treatment lowers the proportion of registered job-seekers among participants.

5 Methods and Data

5.1 Methods

When evaluating the programme effects of Einstiegsgeld, the problem of unobservable possible outcomes arises. This is the fundamental evaluation problem. The Roy (1951)-Rubin (1974)-Model gives a standard framework for this problem. The model and the matching method which under certain assumptions resolves the evaluation problem are discussed in many recent papers, e.g. Caliendo and Kopeinig (2006) or Sianesi (2004). The main pillars in the model are first individuals, second the treatment and third potential outcomes.

Every individual can potentially be in two states (treatment/no treatment) each with a possibly different outcome. As no individual can be observed in both of these two states at the same time, there is always a non-observed state, which is called the counterfactual.

Let D be an indicator for treatment, which takes the value one if a person is treated and zero otherwise. The treatment effect τ_{ATT} for a treated individual would be the difference of his outcome with treatment ($Y_i(1)$) and without the treatment ($Y_i(0)$):

$$\tau_{ATT} = E[Y_i(1) - Y_i(0) \mid D_i = 1] = E[Y_i(1) \mid D_i = 1] - E[Y_i(0) \mid D_i = 1] \quad (1)$$

The outcome of an individual can never be observed in the treatment and the non-treatment state at the same time, so that the causal effect in equation (1) is unobservable. This identification problem needs to be resolved. Under certain assumptions a comparison of the outcomes of treatment group members with very similar control individuals identify the average treatment effect on the treated (ATT).[9]

[9] The decision on which effect to estimate depends on the research question. Heckman, LaLonde and Smith (1999) discuss further parameters.

Propensity Score Matching is one approach to identify such effects. We follow the discussion of the approach by Becker and Ichino (2002): Let us define the propensity score according to Rosenbaum and Rubin (1983) as the conditional probability of treatment, where X_i is a vector of observables at values prior to treatment.

$$P(X_i) = P[D_i = 1 | X_i] = E[D_i = 1 | X_i] \text{ ,} \tag{2}$$

In this context some conditions have to hold for identifying the treatment effect: the condition of balancing of pre-treatment variables given the propensity score ($D \perp X | P(X)$). According to this condition observations with the same propensity score have the same distribution of observables; given pre-treatment characteristics, treatment is random and treatments and control units do on average not differ with respect to pre-treatment characteristics. Next, there are the conditions of unconfoundedness ($Y(1), Y(0) \perp D | X$) and of unconfoundedness given the propensity score ($Y(1), Y(0) \perp D | P(X)$). Unconfoundedness is also labelled as the conditional independence assumption (CIA) and states that outcomes in case of treatment and non-treatment are independent from actual assignment to treatment given the propensity score.

If treatment is random within cells defined by the vector X, it is also random within such cells defined by the values of propensity score $P(X)$, which in contrast to X has only one dimension. Given the above conditions, we have

$$\begin{aligned} \tau_{ATT} &= E[Y_i(1) - Y_i(0) \mid D_i = 1] \\ &= E\{E[Y_i(1) - Y_i(0) \mid D_i = 1, P(X_i)]\} \\ &= E\{E[Y_i(1) \mid D_i = 1, P(X_i)] - E[Y_i(0) \mid D_i = 0, P(X_i)] \mid D_i = 1\} \end{aligned} \tag{3}$$

The basic idea of the matching estimator is to substitute the unobservable expected outcome without treatment of the treated $E[Y_i(0) | D_i = 1, P(X_i)]$ by an observable expected outcome of a suitable control group $E[Y_i(0) | D_i = 0, P(X_i)]$ that has the same distribution of the propensity score as the treatment group. To implement a matching estimator, it requires the additional assumption of common support

$$0 < P(D = 1 | X) < 1 \text{ ,} \tag{4}$$

since for individuals whose probability of treatment is either 0 or 1, no counterfactual can be found. Finally, the "stable unit treatment value assumption" (SUTVA) has to be made. It states that the individual's potential outcome only depends on his own participation and not on the treatment status of other individuals. It implies that there are neither general equilibrium nor cross-person effects.

We estimate the ATT at different points in time after programme start (t=0):

$$\tau_{ATT,t} = E[Y_{i,t}(1) \mid D_{i,0} = 1, P(X_{i,0})] - E\{E[Y_{i,t}(0) \mid D_{i,0} = 0, P(X_{i,0})] \mid D_{i,0} = 1\} \qquad (5)$$

As propensity score matching estimators we use nearest neighbour and radius matching imposing common support. Both techniques select for each treatment observation one or more comparison individuals from a potential control group. The following equation defines these estimators:[10]

$$\tau_{ATT} = \frac{1}{N_{treated}} \sum_{i \in treated} \left[Y_i(1) - \sum_{j \in controls} w_{ij} \cdot Y_j(0) \right], \qquad (6)$$

where $N_{treated}$ is the number of treated persons. w_{ij} is a weight defined as

$$w_{ij} = \frac{1}{N_{i,controls}}, \qquad (7)$$

where $N_{i,controls}$ represents the number of controls matched to the ith treated person. With nearest neighbour matching, this number is chosen by the researcher: e.g., for each treated individual from the control group five neighbours are chosen whose propensity score differs less from that of the treated individual than those of all other control group members. In case of radius matching, all control group individuals are chosen whose propensity score does not differ in absolute terms from the one of the treatment individual by more than a given distance. In that case the number of matched controls may differ for each treatment individual. For the analytical variances and hence the standard errors of these estimators see Becker and Ichino (2002). When carrying out the analysis we followed the outline from Caliendo and Kopeinig (2006).

5.2 Data

For the CIA to hold good data are important. It is not enough to think about good estimators (Heckman et al., 1998) but a data source that is rich in terms of information on individual characteristics and in particular on their programme participation and other labour market outcomes is essential. Characteristics on the individual's household are an important addition to such information. The data in use are administrative data of the German Federal Employment Agency that were prepared for scientific use at the Institute for Employment Research and contain the mentioned information on a daily basis. We use samples of the "Integrated Employment Biog-

[10] For simplicity we leave away the subscript t for time after programme start.

raphies" (IEB).[11] Individual information about employment and unemployment history, daily earnings, occupation, education, and active labour market programme history is available in these data. We additionally rely on an official job-seeker data base ("Bewerberangebotsdatei") that provides information on socio-demographic characteristics.[12]

Many evaluation studies of active labour market programmes rely on administrative data. In contrast to most of these studies, we have the information just described not only for the persons of the treatment and control group but also for members of their needy household. This information is available since the benefit reform of the year 2005, as a new way of registering members of means-tested households was introduced. As a consequence, a new data set, the "Unemployment Benefit II Receipt History", is available, which contains spells of means-tested benefit receipt of all members of a needy household together with a household identifier. Hence, our set of covariates that potentially determines the propensity score is a lot richer than that of many other comparable studies. This is particularly important to justify the Conditional Independence Assumption.

For the treatment group we use the total inflow into Einstiegsgeld for start-ups from February to April 2005 of persons who were both registered unemployed and 'unemployment benefit II' recipients at the end of January 2005. We only consider unemployed persons aged 20 to 57 years, since older UB II recipients do nearly never enter the programme. The potential controls stem from a 20 percent random sample of UB II recipients who were unemployed at 31st January 2005 and who did not enter the self-employment programme from February to April 2005. We carried out the analysis using the entire control group sample. Given the small number of participants, there is however a number of local UB II agencies to which none of the persons in the treatment sample belong. Therefore, we also used a restricted control group sample which a priori excludes 139 out of 487 such units in the data. We further restricted the control group sample only to people who live in the same places of residence as the treated individuals so that out of more than five thousand different small scale areas where the sample members live only 540 were represented by the data. All results that we discuss in the next section select matched controls from the restricted sample.

For the control group members naturally no programme start is available over this period in which treatment started. Therefore, we computed a random programme start for the controls such that it follows the distribution of programme starts of the

[11] The samples exclude the 69 districts in which only local authorities are in charge of administering the unemployment benefit II. For them systematic information on programme participation is not available.

[12] In particular it allows to compute covariates on family status, children, migration background and health status with information from this data base.

treatment group over these months and excluded those controls from our analyses who exited from unemployment before the calculated random programme start.[13,14]

The data on the outcomes was constructed from two data sources. We used information on whether people are registered as unemployed or as job-seekers or are employed in a contributory job from an additional register data set, the "Verbleibsnachweise". These administrative data have one great advantage over the IEB (version 6.00), which also contains such information. They provide the information for a more recent past. This is important since we deal with a relatively recent treatment and need to observe outcomes for a sufficiently long period of time after treatment. We can hence regard the outcome unsubsidised contributory employment for 20 months instead of only eight months. The "Verbleibsnachweise" also allow an observation window of 25 months after programme start for the outcome variables "not registered as unemployed" and "neither registered as unemployed nor as job-seeker" which is five months longer than that of the IEB.

The information on the third outcome variable "unemployment benefit receipt" stems from another data set, the "Unemployment Benefit II Receipt History" (Leistungshistorik Grundsicherung) and is available for 24 months after programme start. The sample sizes of treatments and controls are displayed in Table 2. There are more than 1,200 treatments and more than 270,000 potential controls. For the different subsamples for which the treatment effects were estimated, there are at least 263 treated (women) and up to a maximum of 944 treated (men).

6 Estimation Results

6.1 Implementation

We estimated the ATTs for different groups of participants in order to identify effect heterogeneity. Our main interest is in four groups: men and women, East and West Germany. We also study whether the treatment effect of the start-up subsidy varies with other characteristics of the participants: We regard relatively young UB II re-

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13 When computing the random programme start, we took into account differences of the distribution of programme starts between East and West Germany. If between 31st of January 2005 and their (computed or true) programme start control or treatment group members already exited from unemployment (e.g., due to some other programme participation), they were dismissed from our samples.

14 The data collected by the UB II agencies at the beginning of the year 2005 is certainly characterised by some measurement error. This is not surprising, given that more than three million needy households with more than six million benefit recipients had to be registered according to the new system. In particular, a new software, "A2ll", was introduced to register basic information on benefits and other traits of the needy households and their members. Not all UB II agencies provided complete information at the beginning of the year 2005 with this software according to the Statistical Department of the Federal Employment Agency. Therefore to some extent the daily information is not precise. Dates of individual events like the start or end of benefit receipt may not always have been reported or do not precisely reflect the true dates.

cipients (25-45 years) and German versus foreign UB II recipients. Next, we distinguish between people who are single or live with a partner, and people who were either never employed in a contributory job or whose last contributory employment ended more than 32 months ago and people whose last job ended during the last 32 months. The sample sizes of treatments and potential controls of these subsamples are displayed in Table 2.

We investigate the effects of participation in the start-up programme on four different outcome variables at different points in time after programme start to have a comprehensive insight into the effects of the programme.

First, we investigate the effect of participation on the probability of being regularly employed (i.e. unsubsidised contributory employment). The effects on this outcome provide an idea of the extent to which the treatment by the start-up subsidy lowers the probability of working in a contributory job at different points in time. It is of course not our key outcome variable, since the start-up subsidy aims at successfully integrating the treated into self-employment. Nevertheless, there is a valid question that we want to answer: Does treatment by the start-up programme reduce considerably the chances of being employed in unsubsidised contributory jobs?

As an indicator of the success of the programme a second outcome variable is of much more importance. We observe whether the persons in our sample are registered as unemployed or registered as a job seeker. The second outcome compared to the first includes participation in active labour market programmes as participants are registered as a job seeker in the majority of cases. Thus, a person who is neither registered as unemployed nor as job-seeking can be a) regularly employed with a working time of a least 15 hours a week, for more than three months and earns sufficiently to live on or b) has no longer registered as unemployed or job-seeking without working. Hence, this outcome variable by and large can be interpreted as an indicator for either being employed in a regular and rather stable job (both contributory employment and self-employment) or being out of the labour force.

Third, we present some results on the size of the treatment effect on the outcome “not registered as unemployed”. People who participate in active labour market programmes or who are temporarily employed for very short periods of time would not be registered as unemployed, but usually are registered as job-seekers.

Finally, we observe whether the household of the person and hence the person receives UB II. If the household no longer receives UB II at some point in time, it may be due to the household being no longer needy or it stopped applying for benefits. For the first of these two possibilities there can be several reasons: the person in our sample or other members in the person’s household start to achieve sufficient earnings both by subsidised and unsubsidised employment, such that the household no longer passes the means-test. Various changes in the household composi-

tion may also lead to such a result. E.g., a person in our sample moves to another household with other income that is sufficiently high. Such changes may be affected by treatment. E.g., due to the start-up subsidy for one member of the household and an expected success of the start-up that implies additional financial means, other household members may less intensively search for jobs or are less likely to set-up their own household.

For each of the analysed groups we estimated one probit model for the probability to participate in the start-up programme. The covariate sets in these analyses contain personal characteristics (age, nationality, health indicators, whether the person is single, number of children and qualification), labour market history (indicators on unemployment, and regular employment periods in the past, past participation in active labour market programmes, characteristics of the last contributory job), characteristics of the partner (labour market history and qualification) and finally regional characteristics (dummy variables reflecting a classification of the labour market situation developed by Rüb and Werner (2007) and some further controls at district level: unemployment rate, share of long-term-unemployment in the unemployment pool, ratio between the vacancy and the unemployment stock in January 2005). These characteristics should make it likely that the treatment and control outcomes given the propensity scores differ only due to treatment and hence that the unconfoundedness condition holds.

In particular partner characteristics are new in this context, as administrative data are usually weak on such information. Partner characteristics play a role for the employment decisions but also for outcomes like “no receipt of UB II”, e.g., a UB II recipient with a high in contrast to a low skilled partner is more likely to exit from UB II, when the partner finds a job.

The probit models that we estimated rely on the described set of covariates. Nevertheless, the exact specification of covariate sets differs over the sub-groups. This is first of all because the lower the sample sizes, the broader some variables (e.g., dummy variables for age groups) have to be defined. In Table 3 and Table 4 we present the coefficients of the four probit models that distinguish between men and women and between East and West Germany. The coefficients of probit models for other subgroups are not presented in this paper; they are available on request.

6.2 Sensitivity Analyses and Match Quality

Rosenbaum Bounds

Our results are based on the assumption of unconfoundedness. If there are any unobserved variables that influence selection into the programme as well as outcome variables of the programme a hidden bias could occur and matching estimators would not be robust. The basic idea behind Rosenbaum Bounds is that the

odds ratio of treatment of two matched individuals is one, given that they are characterised by the same observables.[15] If there are neglected unobserved factors that influence the participation probabilities though, these odds of treatment could change, e.g., to a value two. With the help of Rosenbaum bounds we can conduct an analysis that determines how sensitive our results are to the influence of an unobserved variable. It shows how strong neglected unobserved factors have to change the odds ratio, so that we overestimate or underestimate the treatment effect.

We computed the Mantel-Haentzel statistic using the Stata Programme "mhbounds" by Becker and Caliendo (2007). We calculated the test statistic Q_{MH} for the each of the outcomes in every observed month after programme start for each sample we considered. Here we discuss only results on the bounds of the two most important outcome variables "neither registered as unemployed nor as a job-seeker" and "no UB II receipt". These are the bounds for nearest neighbour matching with one neighbour and without replacement, as the mhbounds command can only be applied for nearest neighbour matching without replacement or for stratification matching (Becker and Caliendo 2007).

We discuss the results of this sensitivity analysis only for the sample of men and women and East and West Germans. The effects on the selected outcomes are positive, substantial and significant, as we will later discuss in detail. Let us first regard the bounds or the outcome "neither registered as unemployed nor as a job-seeker". We find unobserved factors that lead to odds ratios of 1.6 to 1.7 would be sufficient to turn the results of women as well as of East and West Germans into an insignificant one at 24 months after programme start. For men the corresponding factor is two. And for the outcome "no UB II receipt" 24 months after programme start the corresponding numbers are slightly lower ranging from 1.4 to 1.9. Hence most of the results are relatively robust to such unobserved factors.

The results of the sensitivity analysis do not mean that a bias actually exists but that matching results are sensitive to possible deviations from the assumption of unconfoundedness and thus one has to be careful in interpreting the results.

Common support

Furthermore for propensity score matching we have to assume that there is a common support which means that the propensity score should lie between zero and one and that the distributions of the propensity score are similar for treatment and control groups. The propensity score is displayed for the samples of men and

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[15] $\frac{P(X_i)/[1-P(X_i)]}{P(X_j)/[1-P(X_j)]}$ would represent the odds ratio of treatment of two matched individuals i and j with the same covariate vectors.

women and of East and West Germany in Figure 1 and in Figure 2. The distribution of the score differs considerably between treatments and controls. Nevertheless, there is no interval of the propensity score of the treatments for which we cannot find control individuals, which is sufficient to find adequate matches for the treated.

Sensitivity to choice of the matching method

For the four main groups (East and West Germany, men and women) we estimated the ATT using different matching estimators, nearest neighbour one-to-one matching without replacement and nearest neighbour matching with replacement using five neighbours. First, each estimation was carried out without caliper. We estimated the 90th and 99th percentile of the differences between the propensity score of treatments and controls (in absolute terms) in each application. These percentiles were then used as 1st and 2nd caliper leaving out the worst one and ten percent of matched pairs. We checked for differences in the estimated ATTs 12, 20 and 24 months after programme start. This analysis confirmed that our estimation results are quite stable over the different methods regarding our samples of East and West Germans as well as men and women. In most cases there is a negligible difference between the estimated ATTs achieved with different matching estimators. And all of them are within the 95 percent confidence band of the estimated ATTs that result from nearest neighbour estimator with five neighbours and with replacement. This is valid for all outcomes considered. We present only results based on this latter estimator.

Balancing

As we do not condition on all covariates but on the propensity score, we have to check the balancing of the relevant variables. Therefore we applied several measures that give us information on the balancing. The standardised absolute bias measures the distance in the marginal distribution of the covariates. Table 5 displays the standard absolute bias as an average over all covariates. Before matching, the biases for the different groups that we consider range from roughly 10 to 15 percent. After we implement matching the bias does not exceed 2.7 percent and for most subgroups it is even below two percent.

Besides the standardised bias for all covariates we checked the matching quality for single covariates. Tables 6-9 display the mean of the covariates for treatments, all controls and matched controls for men and women and for East and West Germany. Furthermore, the p-values of a t-test on the hypothesis that the mean of a given covariate is the same for the control and the treatment group are displayed for all covariates. The results demonstrate that after matching there are no significant differences between treatment and control group in any of the variables.[16]

[16] The results for the other samples for which we estimated ATTs are available on request.

6.3 Average Treatment Effects on the Treated

The estimated ATTs for the samples of men and women and East and West Germans are presented in Figure 3 and Figure 4 and Table 10. We present the results for the four outcomes regular employment, neither registered as unemployed nor as a job-seeker, not registered as unemployed and no UB II receipt. The results stem from nearest neighbour matching with replacement which matches five individuals from the control group to a treated individual. Standard errors were computed with Stata bootstrap procedure 200 replications. Note though Abadie and Imbens (2006) showed that in nearest neighbourhood matching applications bootstrap standard errors are not valid in general.

For judging the treatment effects it is important to keep in mind that the maximum duration of the program is equal to 24 months and thus some of the programme participants are still receiving state support at the end of our observation window. Nevertheless, the actual spell lengths of the start-up subsidy in our sample are frequently far below the maximum. The median duration is about seven months and after roughly 18 months 95 percent of the treated no longer receive the start-up subsidy. Hence, in the last months of our observation window only a very small share of the treated still participate in the programme.

Let us first discuss briefly the treatment effects on the outcome regular contributory employment. Of course the treatment effect on this outcome is negative over the entire observation period as displayed by Figure 3 and Figure 4; the primary aim of the Einstiegsgeld start-up scheme is to increase the participants' probability of being self-employed and not contributory employed. If we were to observe a large share of programme participants in unsubsidised contributory employment, this would be unlikely to lead us to the conclusion of a positive effect of participation of the business start-up scheme. 20 months after programme start, the proportion of the treated in contributory employment is roughly between nine and 11 percentage points lower than for the matched controls. The result is a bit stronger (more negative) for males and West Germans than for women and East Germans. The difference between West and East Germany is not surprising. It is due to the far better performance of the West as opposed to the East German labour market, which implies higher job finding rates for the West German matched controls.[17] Small gender differences may be explained by the different attitudes to risk taking of males and females. If females are more risk averse they are likely to switch from self-employment into contributory employment. But the effect could also be explained due to better labour market prospects of the male as compared with the female con-

[17] During our observation period, which includes mainly the years 2005 and 2006, the unemployment rate in West Germany was between nine and 10 percent. In East Germany instead it ranged from about 17 to 19 percent (Source: Statistics Department of the Federal Labour Agency). These numbers refer to registered unemployment.

trols. We also observe that the effect tends to become stronger (more negative) as time passes for most of the groups.

Regarding the three other outcome variables all treatment effects are positive. This however is partly linked to the design of the evaluated programme.

Now turn to the treatment effects on the outcomes “neither registered as unemployed nor as a job-seeker” and “not registered as unemployed” of programme participants compared with non-participants. In the first few months after programme start we observe a large positive effect for the outcome “not registered as unemployed” lying at around 60 to 70 percentage points, irrespective of gender and region (see Figure 3 and Figure 4). The estimated ATT for the outcome “neither registered as unemployed nor as a job-seeker” is lower but still above 30 percentage points. Interpreting these results in the first months one should be cautious. Positive values in these months do not indicate a success as the analysed programme is long and thus participants are not registered as unemployed due to their active labour market programme (ALMP) participation.

Generally the trends for the effects reviewed above are non-monotonic but decline in the long run. By the 20th month the estimated ATT on the outcome “not registered as unemployed” is about 25 to 30 percentage points for most of the different participant groups as displayed in Table 10. The corresponding effect on “neither registered as unemployed nor as a job-seeker” is roughly 20 percentage points. Hence, whether we regard men or women, East or West Germans, Germans or Foreigners the order of magnitude of the treatment effect is quite similar for this latter outcome. Again one should keep in mind that for the bulk of participants of the start-up scheme the subsidy has already terminated before the 20th month after programme start.
When we regard the outcome “not registered as unemployed” the estimated ATTs differ more between some treatment groups. For the main analysed groups we observe that the effect is slightly weaker for female participants compared to male participants 20 months after programme start (Table 10). For East Germans it is about five percentage points lower than for West Germans. As by that point in time nearly none of the participants still receives the subsidy, we conclude that due to the better labour market situation in the West, the start-ups also are more successful than in the East. However, the differences between the ATTs of East and West Germany are not statistically significant as the 95 percent confidence bands in Figure 4 demonstrate.

As a final and crucial part of our evaluation exercise we present the estimated ATTs for the outcome “not receiving UB II”. The results support our previous conclusion that there is evidence pointing to a significant positive effect of participation in the business start-up programme compared to non-participation. At the beginning of the evaluation period we observe that the ATT of “not receiving UB II” is approximately

zero for all groups of participants. This is displayed for the samples of men and women and East and West Germany in Figure 3 and Figure 4. Hence, during the first few months of the start-up the share of participants who are not needy is hardly changed by the subsidy. Yet, slowly treatment raises this share. By the end of our observations window, 20 months up to 25 months after programme start, the share of participants who do not receive UB II is considerably higher than that of the matched controls. When we regard men or West Germans, the difference between treated and matched controls is more than 15 percentage points (see Table 10). For women and East Germans the corresponding number is 11 percentage points. Our findings indicate that due to participation some participants of the Einstiegsgeld start-up scheme become self-reliant relatively fast and do not require financial support in terms of UB II. These results together with the ones for the outcome “neither registered as unemployed nor as a job-seeker” clearly suggest that the start-up subsidy is effective in terms of integrating a considerable share of participants into the labour market and in turn reducing their benefit dependency.

So far we have learned that participation in the Einstiegsgeld start-up scheme produces significant gains both for West and East German participants as well as for male and female participants. In the analysis however we consider a number of other socio-demographic groups (see Table 10). These are the 25 to 45 year olds, people with secondary or higher education, Germans versus foreigners and people who worked in unsubsidised contributory employment in the last 32 months compared with those who did not fulfil this criterion. The estimated ATTs for the different outcomes are relatively similar in order of magnitude among these different treatment groups (Table 10). Thus, we do not observe much effect heterogeneity. At the same time it is important to keep in mind that the sample which was available for the analysis is quite small and does not allow us to conduct a more detailed analysis with more homogeneous groups. An analysis involving more participants of the programme that allows studying effect heterogeneity in more detail and over a longer period of time is a topic for further research.

7 Summary and Conclusions

This paper estimated the treatment effects on treated of a new start-up subsidy, ”Einstiegsgeld” for needy unemployed people in Germany. The start-up subsidy was introduced together with a new means-tested benefit system at the start of the year 2005. It is paid on top of the means-tested benefit, provided that the household remains needy. We analysed for a sample of needy unemployed people, who entered the programme from February to April 2005, whether the participation improved their labour market performance and lead them out of means-tested benefit receipt. The data stem from different administrative records, which do not provide any information about unsubsidised self-employment. Therefore, we studied in particular whether the programme made it more likely for participants not to receive UB II, or

neither to be registered as unemployed nor as job-seekers. Positive values of these indicators point to a successful participation.

Our results from nearest neighbour matching with replacement and five neighbours imply that the programme is effective. By the end of our observation window, about two years after programme start, the estimated ATTs suggest that treatment raised the share of participants who do not receive UB II and who are registered neither as unemployed nor as job-seekers. For the first of these two outcomes the effect is, depending on the sample, of an order of magnitude of about 11 to 16 percentage points, while for the second it is roughly 20 percentage points. Our results do not point to large differences between the ATTs of different groups of participants. However, East Germans and women tend to benefit less from the start-up subsidy than West Germans and males as far as we are concerned with the treatment effect on the dependency on means-tested benefits. That the treatment effect is lower in the East than the West is hardly surprising. Since the East German economy is still less prosperous than the West German one, the success rate of the start-ups tends to be higher in the West.

Baumgartner and Caliendo (2007) estimated in a similar study the ATTs of two start-up programmes, which were not focused on needy people but rather on unemployment insurance benefit recipients. The results of one or their outcome variables “not unemployed” can be compared to ours; the treatment effects on the treated are of a similar order of magnitude for the Einstiegsgeld start-up scheme that we analysed and the bridging allowance and the other start-up subsidy that they analysed. Baumgartner and Caliendo (2007) also had data on another outcome “Employed or Self-Employed” from a survey that was conducted with the treated and controls and found that both programmes had raised the share of employed people for the participant considerably. Even though we do not have such information, the similarities of the treatment effects on the unemployment outcome may well imply similarities for such an employment outcome.

The start-up scheme is effective for needy unemployed participants and hence achieves the goal of raising their chance to escape from UB II receipt. The programme is small in terms of inflow, with less than 20 thousand new participants in the year 2005 and around 30 thousand participants in 2006 and 2007. Hence, one policy implication is that promoting more start-ups by Einstiegsgeld is a successful strategy for reducing benefit dependency. However, it is not clear, whether the number of participants can be increased considerably. First of all the number of potential entrepreneurs among needy unemployed people may be small. In contrast to UI benefit recipients they are on average people who are harder to place. Hence the share of people with the hard and soft skills for starting their own business is most likely lower among UB II recipients than among UI recipients. Credit constraints for poor households may be the reason for the low inflow into the programme and hence the level of the subsidy would have to increase in order to raise the number

of treated. However, there may also be a sorting effect that explains that the number of subsidised start-ups is low among the needy unemployed. Potential entrepreneurs presumably enter a start-up programme as long as they receive UI benefit. Before running out of UI, they have the right to enter such a scheme, provided that their business plan was externally approved by a chamber of commerce. This is different with the Einstiegsgeld scheme. Even providing such a business plan does not guarantee the receipt of the start-up subsidy. It has to be approved by the UB II agency.

Until now there is only little evidence on which ALMPs effectively achieve the goal of activating needy unemployed people in Germany. The One-Euro-Job, a work-fare programme, and the assignment to a private placement service apparently achieve smaller treatment effects on the treated than the start-up subsidy. A comparison of our results to the studies of Hohmeyer and Wolff (2007) and Bernhard and Wolff (2008) demonstrates this. Evaluation results on short-term training programmes (Wolff and Jozwiak, 2007) for the benefit dependency outcome as far as training takes place within companies are of a similar order of magnitude as the start-up subsidy for the treated (Wolff and Jozwiak, 2007). Though this statement holds only, if we regard the end of our observation window of around two years after programme start. Earlier on the training programme is more effective for its treated. However, this comparison cannot tell us which program works better for which treatment group. The treatment groups of each of these programmes differ both in composition and size. Further research should hence analyse whether the Einstiegsgeld as a start-up scheme is more effective in terms of reducing benefit dependency and integration into the labour market for its specific participants than other programmes.

Future research should also shed light on additional issues. Our observation window was still short. Thus, additional research has to analyse whether the Einstiegsgeld start-up scheme reduces the need for means-tested benefits in the long-term. Moreover, at later points in time one can draw on larger inflow samples into the start-up programme. Hence, it is possible to take into account more effect heterogeneity. Another topic is the effectiveness of the programme on a macro-level. From our results, we cannot infer whether the intensity of the programme reduces the jobseeker rate and rate of needy unemployed or raises the employment rate in the economy. We cannot assume that there is for example no deadweight loss. Whether the programme is effective for the entire economy can be studied with dynamic panel data models using district level panel data.

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Tables and Figures

Table 1
Average stock of needy unemployed and inflow into the Einstiegsgeld programme in thousand[1),2)]

	Average stock of needy unemployed			Inflow into Einstiegsgeld programme					
				start-up scheme			contributory empl. scheme		
Year	2005	2006	2007	2005	2006	2007	2005	2006	2007
Total	2402.0	2442.8	2187.0	17.1	32.6	30.1	2.9	14.9	19.2
(Share of women in %)	(44.2)	(45.2)	(47.0)	(29.8)	(31.6)	(33.9)	(47.1)	(38.9)	(40.4)
East Germany	834.0	846.8	781.0	6.0	13.1	14.0	2.2	9.6	8.5
(Share of women in %)	(45.2)	(44.9)	(46.0)	(33.2)	(33.7)	(34.9)	(49.8)	(43.6)	(49.1)
West Germany	1568.0	1596.0	1406.1	11.2	19.4	16.1	0.7	5.3	10.7
(Share of women in %)	(43.7)	(45.4)	(47.5)	(28.0)	(30.2)	(33.1)	(38.5)	(30.4)	(33.6)

Source: Data Warehouse of the Statistics Department of the Federal Labour Agency

1) The data on the year 2007 are preliminary.
2) The data exclude 69 districts in which only local authorities are in charge of administering the unemployment benefit II. They did not provide systematic information on programme participation in the period under review.

Table 2
Sample sizes of treated and potential controls

	Treated	Controls
Total Sample	1,207	273,232
East Germany	434	93,114
West Germany	773	133,635
Male	944	129,311
Female	263	97,438
Age 25-45	858	128,677
Education: Secondary or Higher	757	117,422
German	873	186,556
Foreign	334	40,193
Time since end of last regular job is more than 32 months or never regularly employed	623	147,630
Time since end of last regular job is less or equal to 32 months	584	79,119

Table 3
Probit coefficients of start-up scheme participation equation by gender

	Male		Female	
	Coef.	SE	Coef.	SE
Age in years				
20 to 25	0.202**	0.069	0.19	0.128
26 to 35	0.301**	0.055	0.306**	0.112
36 to 45	0.225**	0.054	0.300**	0.109
46 to 55	0.140**	0.055	0.208*	0.11
56 to 62	*ref.*		*ref.*	
Number of children				
No child	*ref.*		*ref.*	
One child	0.102**	0.032	-0.043	0.048
Two children or more	0.097**	0.032	0.06	0.052
Health limitation (1 = yes)	-0.239**	0.027	-0.098*	0.053
Nationality: German	-0.027	0.052	0.011	0.084
Couple household	0.042	0.033	-0.014	0.068
Education				
No degree	*ref.*		*ref.*	
Secondary or higher school degree	0.042	0.033	-0.014	0.068
Secondary school degree with apprenticeship	0.087**	0.035	0.218**	0.07
Higher education	0.188**	0.035	0.373**	0.065
Partner Education				
No degree	0.002	0.061		
Secondary or higher school degree	-0.012	0.059		
Secondary school degree with apprenticeship	-0.044	0.073		
Higher education	*ref.*			
missing 1: no IEB information on partner	0.005	0.065		
missing 2: partner education missing in IEB	0.02	0.058		
No degree or secondary or higher school degree			-0.212**	0.087
Secondary school degree with apprenticeship			-0.086	0.09
Higher education			*ref.*	
Missing or no info /IEB info but no part. educ.			-0.181*	0.096
Partner cumulated unempl. duration in last five years				
less than 181 days	0.074	0.046		
181 to 360 days	0.088	0.059		
more than 360 days	*ref.*		*ref.*	
less than 361 days			0.066	0.078
Partner cumulated employment duration during last five years				
Partner no empl. spell	*ref.*		*ref.*	
less than 361 days	0.044	0.052		
more than 360 days	0.003	0.042		
at least one day			0.089	0.066

* 10% sign. level, ** 5% sign. level, *** 1% sign. level

Table 3 continued
Probit coefficients of start-up scheme participation equation by gender[1)]

	Male		Female	
	Coef.	SE	Coef.	SE
Cumulated employment duration during last five years				
No employment spell	-0.071	0.079	-0.031	0.125
less than 181 days	*ref.*		*ref.*	
181 to 360 days	0.008	0.04	0.015	0.08
more than 360 days	-0.074**	0.036	-0.042	0.069
Want to work full-time	0.066	0.085	0.022	0.047
Last professional status				
No regular employment ever	0.005	0.064	0.201*	0.115
Unskilled worker	*ref.*		*ref.*	
Skilled-worker	0.045	0.03	0.115	0.08
White-collar	0.219**	0.033	0.1	0.062
Non-classified	0.027	0.042	0.079	0.063
Last monthly real wage (deflated with CPI, 2000=100)				
0 Euro <= last salary < 400 Euro	*ref.*		*ref.*	
400 Euro <= last salary < 1000 Euro	-0.057	0.064	-0.109	0.097
1000 Euro <= last salary < 1500 Euro	-0.059	0.063	-0.072	0.099
last salary >= 1500 Euro	-0.047	0.062	0.063	0.101
Time since end of last contributory employment				
< 18 months	*ref.*		*ref.*	
18 to 32 months	0.025	0.031	-0.019	0.06
33 to 45 months	-0.018	0.038	-0.172**	0.079
more than 45 months	0.02	0.046	0.034	0.086
Industry of last contributory job				
Primary or secondary sector	-0.032	0.054	0.132	0.106
Trade/transport/communication	0.089*	0.054	0.310**	0.094
Public administr., defense, social security agencies	-0.076	0.062	0.139	0.099
Other services	-0.049	0.055	0.228**	0.092
No sector information	*ref.*		*ref.*	
Cumulated unempl. duration during last five years				
0<=since last emp.<18 months	*ref.*		*ref.*	
18<=since last emp.<32 months	0.016	0.039	0.03	0.053
33<=since last emp.<45 months	-0.085*	0.046	-0.064	0.077
since last emp.>=45 months	-0.219**	0.05	-0.268**	0.084
Previous ALMP participation in last five years				
Training	0.009	0.022	-0.076*	0.042
Start-up subsidy	0.170**	0.029	0.208**	0.057
Public works	-0.223**	0.046	-0.341**	0.091
Regional variables (district level) in January 2005				
Regional unempl. rate	-0.004	0.005	-0.002	0.005
Share of long-term unemployment (SLU)	-0.007**	0.002	-0.007**	0.003
%age change of SLU against previous year	0.001**	0.001	0.002*	0.001
Vacancy-unemployment ratio	-0.158	0.549	-1.478	1.201
Constant	-2.794**	0.192	-3.384**	0.251
N	130,255		97,701	
pseudo-R^2	0.0461		0.0613	

* 10% sign. level, ** 5% sign. level, *** 1% sign. level

1) Coefficients of dummies for a regional classification according to Rüb and Werner (2007) are omitted.

Table 4
Probit coefficients of start-up scheme participation equation by region

	West		East	
	Coef.	SE	Coef.	SE
Age in years				
20 to 25	0.175**	0.078	0.182*	0.097
26 to 35	0.321**	0.063	0.234**	0.08
36 to 45	0.281**	0.062	0.144*	0.079
46 to 55	0.204**	0.062	0.05	0.08
56 to 62	ref.		ref.	
Female	-0.313**	0.033	-0.313**	0.039
Number of children				
No child	ref.		ref.	
One child	0.067**	0.034	0.063	0.043
Two children or more	0.081**	0.033	0.100**	0.046
Health limitation (1 = yes)	-0.03	0.037	-0.046	0.055
Nationality: German	-0.212**	0.027	-0.240**	0.049
Couple household	0.022	0.071	-0.028	0.059
Education				
No degree	ref.		ref.	
Secondary or higher school degree	0.054	0.035	-0.019	0.057
Secondary school degree with apprenticeship	0.164**	0.037	-0.036	0.061
Higher education	0.274**	0.039	0.174**	0.052
Partner Education				
No degree	-0.106	0.073		
Secondary or higher school degree	-0.079	0.072		
Secondary school degree with apprenticeship	-0.019	0.083		
Higher education	ref.			
missing 1: no IEB information on partner	-0.104	0.076		
missing 2: partner education missing in IEB	-0.033	0.071		
No degree			0.081	0.08
Secondary or higher school degree or apprent.			-0.149**	0.07
Higher education			ref.	
missing 1: no IEB information on partner			0.152	0.107
missing 2: partner education missing in IEB			-0.023	0.077
Partner cumulated unempl. duration in last five years				
less than 181 days	0.129**	0.046	-0.129*	0.078
181 to 360 days	0.032	0.065	0.129*	0.075
more than 360 days	ref.		ref.	
Partner cumulated employment duration during last five years				
Partner no empl. spell	ref.		ref.	
less than 361 days	0.143**	0.05	0.061	0.071
more than 360 days	0.065	0.068	0.052	0.06
Cumulated employment duration during last five years				
No employment spell	0.046	0.093	-0.13	0.1
less than 181 days	ref.		ref.	
181 to 360 days	0.003	0.046	0.028	0.058
more than 360 days	-0.070*	0.042	-0.041	0.05

* 10% sign. level, ** 5% sign. level, *** 1% sign. level

Table 4 continued
Probit coefficients of start-up scheme participation equation by region[1)]

	West		East	
	Coef.	SE	Coef.	SE
Want to work full-time	0.029	0.045	0.147*	0.082
Last professional status				
No regular employment ever	0.065	0.07	0.023	0.091
Unskilled worker	ref.		ref.	
Skilled-worker	0.093**	0.035	-0.017	0.045
White-collar	0.176**	0.036	0.181**	0.046
Non-classified	0.106**	0.042	-0.019	0.054
Last monthly real wage (deflated with CPI, 2000=100)				
0 Euro <= last salary < 400 Euro	ref.		ref.	
400 Euro <= last salary < 1000 Euro	0.082	0.076	-0.239**	0.078
1000 Euro <= last salary < 1500 Euro	0.075	0.075	-0.189**	0.077
last salary >= 1500 Euro	0.093	0.075	-0.162**	0.079
Time since end of last contributory employment				
< 18 months	ref.		ref.	
18 to 32 months	0.000	0.034	0.041	0.048
33 to 45 months	-0.059	0.042	-0.036	0.059
more than 45 months	0.028	0.052	0.012	0.065
Industry of last contributory job				
Primary or secondary sector	0.022	0.064	0.032	0.072
Trade/transport/communication	0.132**	0.063	0.203**	0.071
Public administr., defense, social security agencies	0.011	0.068	-0.047	0.082
Other services	0.025	0.064	0.052	0.071
No sector information	ref.		ref.	
Cumulated unempl. duration during last five years				
0<=since last emp.<18 months	ref.		ref.	
18<=since last emp.<32 months	0.016	0.039	0.023	0.052
33<=since last emp.<45 months	-0.067	0.049	-0.088	0.063
since last emp.>=45 months	-0.173**	0.052	-0.287**	0.07
Previous ALMP participation in last five years				
Training	0.017	0.024	-0.058*	0.033
Start-up subsidy	0.215**	0.032	0.118**	0.042
Public works	-0.125**	0.058	-0.300**	0.055
Regional variables (district level) in January 2005				
Regional unempl. rate	-0.005	0.005	0.000	0.007
Share of long-term unemployment (SLU)	-0.007**	0.002	-0.012**	0.004
%age change of SLU against previous year	0.002**	0.001	0.001	0.001
Vacancy-unemployment ratio	-0.367	0.508	0.795	2.099
Constant	-3.012**	0.194	-2.557**	0.275
N	134,408		93,548	
pseudo-R2	0.0591		0.0698	

* 10% sign. level, ** 5% sign. level, *** 1% sign. level

1) Coefficients of dummies for a regional classification according to Rüb and Werner (2007) are omitted.

Table 5
Mean standardised absolute bias[1),2)]

Subsample	before matching	after matching
East Germany	15.13	2.49
West Germany	13.43	1.69
Male	11.70	1.35
Female	13.95	2.68
Age 25-45	12.46	1.27
Education: Secondary or Higher	13.12	1.51
German	12.46	1.75
Foreign	14.96	1.96
Time since end of last regular job is more than 32 months or never regularly employed	12.72	1.49
Time since end of last regular job is less or equal to 32 months	10.63	1.97

1) Results from nearest neighbour matching with replacement (five neighbours).

2) Standardised Bias: $100 \cdot (\overline{X}_{treat} - \overline{X}_{controls}) / \sqrt{0.5 \cdot [V_{treat}(X) + V_{controls}(X)]}$.

Table 6
Match quality for covariates – Men

				P-value of t-test on H_0:	
				no differences between	
Control variables	Averages			treated and controls	
	Matched	All	Matched	before	after
	Treated	controls	controls	matching	
Age in years					
20 to 25	0.07	0.08	0.07	0.39	0.93
26 to 35	0.35	0.24	0.35	0.00	0.92
36 to 45	0.34	0.32	0.35	0.06	0.66
46 to 55	0.20	0.28	0.19	0.00	0.60
56 to 62			ref.		
Number of children					
No child			ref.		
One child	0.16	0.12	0.17	0.00	0.80
Two children or more	0.19	0.14	0.19	0.00	0.95
Health limitation (1 = yes)	0.11	0.15	0.11	0.00	0.98
Nationality: German	0.69	0.81	0.69	0.00	0.76
Couple household	0.44	0.37	0.43	0.00	0.71
Education					
No degree			ref.		
Secondary or higher school degree	0.25	0.27	0.26	0.08	0.62
Secondary school degree with apprenticeship	0.25	0.29	0.24	0.02	0.59
Higher education	0.34	0.25	0.34	0.00	0.98
Partner Education					
No degree	0.08	0.07	0.08	0.16	1.00
Secondary or higher school degree	0.06	0.06	0.06	0.68	0.93
Secondary school degree with apprenticeship	0.03	0.03	0.03	0.29	0.93
Higher education			ref.		
missing 1: no IEB information on partner	0.11	0.08	0.11	0.00	0.79
missing 2: partner education missing in IEB	0.10	0.07	0.09	0.00	0.58
Partner cumulated unempl. duration in last five years					
less than 181 days	0.26	0.19	0.25	0.00	0.78
181 to 360 days	0.05	0.03	0.05	0.00	0.97
more than 360 days			ref.		
Partner cumulated employment duration during last five years					
Partner no empl. spell			ref.		
less than 361 days	0.06	0.04	0.06	0.04	0.86
more than 360 days	0.10	0.09	0.10	0.11	0.62
Cumulated employment duration during last five years					
No employment spell	0.30	0.40	0.31	0.00	0.58
less than 181 days			ref.		
181 to 360 days	0.12	0.10	0.12	0.03	0.79
more than 360 days	0.43	0.36	0.43	0.00	0.88
Want to work full-time	0.99	0.98	0.99	0.60	0.75

Table 6 continued
Match quality for covariates – Men

				P-value of t-test on H_0:	
				no differences between	
Control variables	Averages			treated and controls	
	Matched	All	Matched	before	after
	Treated	controls	controls	matching	
Last professional status					
No regular employment ever	0.12	0.13	0.13	0.59	0.45
Unskilled worker			ref.		
Skilled-worker	0.22	0.22	0.23	0.70	0.83
White-collar	0.21	0.11	0.20	0.00	0.78
Non-classified	0.08	0.10	0.07	0.01	0.75
Last monthly real wage (deflated with CPI, 2000=100)					
0 Euro <= last salary < 400 Euro			ref.		
400 Euro <= last salary < 1000 Euro	0.13	0.13	0.12	0.61	0.82
1000 Euro <= last salary < 1500 Euro	0.20	0.19	0.20	0.22	1.00
last salary >= 1500 Euro	0.34	0.26	0.34	0.00	0.84
Time since end of last contributory employment					
< 18 months			ref.		
18 to 32 months	0.21	0.16	0.21	0.00	0.92
33 to 45 months	0.12	0.12	0.12	0.81	0.88
more than 45 months	0.26	0.36	0.26	0.00	0.96
Industry of last contributory job					
Primary or secondary sector	0.26	0.25	0.26	0.88	0.75
Trade/transport/communication	0.25	0.15	0.25	0.00	0.88
Public administr., defense, social security agencies	0.06	0.10	0.06	0.00	0.80
Other services	0.21	0.23	0.19	0.12	0.51
No sector information			ref.		
Cumulated unempl. duration during last five years					
0<=since last emp.<18 months			ref.		
18<=since last emp.<32 months	0.59	0.44	0.59	0.00	0.84
33<=since last emp.<45 months	0.18	0.21	0.18	0.02	0.93
since last emp.>=45 months	0.12	0.26	0.13	0.00	0.69
Previous ALMP participation in last five years					
Training	0.48	0.47	0.48	0.28	0.95
Start-up subsidy	0.21	0.11	0.19	0.00	0.53
Public works	0.06	0.16	0.05	0.00	0.45
Regional variables (district level) in January 2005					
Regional unempl. rate	16.20	17.17	16.25	0.00	0.87
Share of long-term unemployment (SLU)	35.49	36.99	35.58	0.00	0.80
%age change of SLU against previous year	1.52	3.26	1.47	0.03	0.96
Vacancy-unemployment ratio	0.03	0.03	0.03	0.04	0.82

Table 7
Match quality for covariates – Women

				P-value of t-test on H_0:	
				no differences between	
Control variables	Averages			treated and controls	
	Matched	All	Matched	before	after
	Treated	controls	controls	matching	
Age in years					
20 to 25	0.07	0.08	0.07	0.39	0.84
26 to 35	0.30	0.22	0.32	0.00	0.71
36 to 45	0.40	0.33	0.37	0.01	0.52
46 to 55	0.20	0.28	0.22	0.00	0.67
56 to 62			ref.		
Number of children					
No child			ref.		
One child	0.22	0.24	0.22	0.61	0.93
Two children or more	0.26	0.22	0.23	0.09	0.40
Health limitation (1 = yes)	0.83	0.84	0.85	0.79	0.60
Nationality: German	0.33	0.38	0.31	0.10	0.60
Couple household	0.14	0.29	0.13	0.00	0.76
Education					
No degree			ref.		
Secondary or higher school degree	0.15	0.29	0.14	0.00	0.73
Secondary school degree with apprenticeship	0.19	0.19	0.19	0.93	0.91
Higher education	0.56	0.31	0.55	0.00	0.94
Partner Education					
No degree or secondary or higher school degree	0.08	0.13	0.08	0.01	0.90
Secondary school degree with apprenticeship	0.07	0.07	0.07	0.79	0.97
Higher education			ref.		
Missing or no info /IEB info but no part. educ.	0.08	0.12	0.07	0.07	0.57
Partner cumulated unempl. duration in last five years					
more than 360 days			ref.		
less than 361 days	0.13	0.14	0.12	0.82	0.58
Partner cumulated employment duration during last five years					
Partner no empl. spell			ref.		
at least one day	0.22	0.21	0.20	0.71	0.58
Cumulated employment duration during last five years					
No employment spell	0.43	0.57	0.43	0.00	0.92
less than 181 days			ref.		
181 to 360 days	0.10	0.07	0.10	0.07	1.00
more than 360 days	0.35	0.25	0.35	0.00	0.94
Want to work full-time	0.75	0.76	0.75	0.65	0.95

Table 7 continued
Match quality for covariates – Women

				P-value of t-test on H_0:	
				no differences between	
Control variables	Averages			treated and controls	
	Matched	All	Matched	before	after
	Treated	controls	controls	matching	
Last professional status					
No regular employment ever	0.09	0.07	0.09	0.17	0.83
Unskilled worker			ref.		
Skilled-worker	0.30	0.19	0.29	0.00	0.66
White-collar	0.22	0.24	0.22	0.50	0.95
Non-classified	0.24	0.28	0.28	0.16	0.41
Last monthly real wage (deflated with CPI, 2000=100)					
0 Euro <= last salary < 400 Euro			ref.		
400 Euro <= last salary < 1000 Euro	0.17	0.17	0.17	0.94	0.93
1000 Euro <= last salary < 1500 Euro	0.16	0.14	0.16	0.31	0.93
last salary >= 1500 Euro	0.20	0.09	0.20	0.00	0.95
Time since end of last contributory employment					
< 18 months			ref.		
18 to 32 months	0.17	0.12	0.17	0.01	0.95
33 to 45 months	0.06	0.08	0.06	0.28	0.77
more than 45 months	0.27	0.35	0.23	0.01	0.38
Industry of last contributory job					
Primary or secondary sector	0.08	0.09	0.07	0.41	0.82
Trade/transport/communication	0.27	0.14	0.27	0.00	0.94
Public administr., defense, social security agencies	0.11	0.14	0.11	0.11	0.87
Other services	0.22	0.18	0.20	0.17	0.64
No sector information			ref.		
Cumulated unempl. duration during last five years					
0<=since last emp.<18 months			ref.		
18<=since last emp.<32 months	0.56	0.38	0.54	0.00	0.73
33<=since last emp.<45 months	0.13	0.16	0.13	0.29	0.82
since last emp.>=45 months	0.08	0.23	0.07	0.00	0.43
Previous ALMP participation in last five years					
Training	0.38	0.39	0.35	0.82	0.44
Start-up subsidy	0.16	0.06	0.15	0.00	0.61
Public works	0.04	0.14	0.04	0.00	0.86
Regional variables (district level) in January 2005					
Regional unempl. rate	16.96	17.68	17.11	0.05	0.78
Share of long-term unemployment (SLU)	35.61	36.91	35.64	0.00	0.96
%age change of SLU against previous year	4.09	4.86	4.11	0.64	0.99
Vacancy-unemployment ratio	0.03	0.03	0.03	0.79	0.68

Table 8
Match quality for covariates – West Germany

				P-value of t-test on H_0:	
				no differences between	
Control variables	Averages			treated and controls	
	Matched	All	Matched	before	after
	Treated	controls	controls	matching	
Age in years					
20 to 25	0.08	0.10	0.04	0.43	0.28
26 to 35	0.34	0.24	0.34	0.01	0.96
36 to 45	0.39	0.31	0.39	0.05	0.96
46 to 55	0.14	0.25	0.19	0.00	0.26
56 to 62			ref.		
Female	0.19	0.41	0.20	0.00	0.83
Number of children					
No child			ref.		
One child	0.22	0.15	0.16	0.02	0.22
Two children or more	0.16	0.16	0.23	0.78	0.14
Health limitation (1 = yes)	0.15	0.14	0.09	0.77	0.17
Nationality: German	0.59	0.77	0.65	0.00	0.31
Couple household	0.48	0.35	0.44	0.00	0.50
Education					
No degree			ref.		
Secondary or higher school degree	0.33	0.34	0.24	0.82	0.11
Secondary school degree with apprenticeship	0.21	0.25	0.28	0.24	0.21
Higher education	0.27	0.16	0.33	0.00	0.28
Partner Education					
No degree	0.09	0.08	0.07	0.72	0.58
Secondary or higher school degree	0.07	0.07	0.08	0.88	0.71
Secondary school degree with apprenticeship	0.06	0.04	0.04	0.21	0.47
Higher education			ref.		
missing 1: no IEB information on partner	0.11	0.07	0.09	0.08	0.71
missing 2: partner education missing in IEB	0.08	0.06	0.09	0.49	0.72
Partner cumulated unempl. duration in last five years					
less than 181 days	0.33	0.17	0.27	0.00	0.31
181 to 360 days	0.05	0.03	0.05	0.35	0.95
more than 360 days			ref.		
Partner cumulated employment duration during last five years					
Partner no empl. spell			ref.		
less than 361 days	0.08	0.05	0.07	0.12	0.74
more than 360 days	0.12	0.11	0.13	0.50	0.83

Table 8 continued
Match quality for covariates – West Germany

				P-value of t-test on H_0:	
				no differences between	
Control variables	Averages			treated and controls	
	Matched	All	Matched	before	after
	Treated	controls	controls	matching	
Cumulated employment duration during last five years					
No employment spell	0.27	0.43	0.27	0.00	1.00
less than 181 days			ref.		
181 to 360 days	0.13	0.09	0.11	0.09	0.52
more than 360 days	0.46	0.36	0.48	0.02	0.77
Want to work full-time	0.94	0.86	0.93	0.01	0.73
Last professional status					
No regular employment ever	0.14	0.23	0.12	0.02	0.58
Unskilled worker			ref.		
Skilled-worker	0.18	0.11	0.18	0.02	0.90
White-collar	0.19	0.14	0.23	0.08	0.43
Non-classified	0.09	0.13	0.11	0.26	0.62
Last monthly real wage (deflated with CPI, 2000=100)					
0 Euro <= last salary < 400 Euro			ref.		
400 Euro <= last salary < 1000 Euro	0.12	0.13	0.11	0.74	0.73
1000 Euro <= last salary < 1500 Euro	0.15	0.17	0.21	0.53	0.18
last salary >= 1500 Euro	0.45	0.23	0.38	0.00	0.26
Time since end of last contributory employment					
< 18 months			ref.		
18 to 32 months	0.14	0.17	0.22	0.42	0.10
33 to 45 months	0.18	0.11	0.11	0.01	0.10
more than 45 months	0.23	0.28	0.23	0.25	0.98
Industry of last contributory job					
Primary or secondary sector	0.23	0.18	0.27	0.11	0.55
Trade/transport/communication	0.29	0.16	0.27	0.00	0.62
Public administr., defense, social security agencies	0.08	0.10	0.06	0.46	0.59
Other services	0.18	0.20	0.19	0.56	0.80
No sector information			ref.		
Cumulated unempl. duration during last five years					
0<=since last emp.<18 months			ref.		
18<=since last emp.<32 months	0.57	0.44	0.62	0.00	0.42
33<=since last emp.<45 months	0.22	0.15	0.15	0.05	0.15
since last emp.>=45 months	0.10	0.19	0.12	0.01	0.64
Previous ALMP participation in last five years					
Training	0.49	0.40	0.49	0.04	0.98
Start-up subsidy	0.23	0.08	0.17	0.00	0.23
Public works	0.03	0.07	0.03	0.11	0.94
Regional variables (district level) in January 2005			ref.		
Regional unempl. rate	13.05	13.18	12.70	0.72	0.45
Share of long-term unemployment (SLU)	34.04	33.89	33.21	0.83	0.40
%age change of SLU against previous year	-9.29	-11.46	-10.67	0.04	0.36
Vacancy-unemployment ratio	0.04	0.04	0.04	0.42	0.96

Table 9
Match quality for covariates – East Germany

				P-value of t-test on H_0:	
				no differences between	
Control variables	Averages			treated and controls	
	Matched	All	Matched	before	after
	Treated	controls	controls	matching	
Age in years					
20 to 25	0.09	0.08	0.09	0.21	0.71
26 to 35	0.35	0.22	0.35	0.00	0.86
36 to 45	0.34	0.32	0.35	0.42	0.89
46 to 55	0.18	0.30	0.18	0.00	0.94
56 to 62	ref.				
Female	0.26	0.45	0.26	0.00	0.76
Number of children					
No child	ref.				
One child	0.19	0.19	0.18	0.98	0.66
Two children or more	0.18	0.18	0.17	0.82	0.71
Health limitation (1 = yes)	0.08	0.12	0.09	0.02	0.79
Nationality: German	0.82	0.91	0.82	0.00	0.92
Couple household	0.40	0.42	0.38	0.50	0.51
Education					
No degree	ref.				
Secondary or higher school degree	0.15	0.19	0.15	0.03	0.95
Secondary school degree with apprenticeship	0.14	0.25	0.14	0.00	0.95
Higher education	0.58	0.43	0.59	0.00	0.82
Partner Education					
No degree	0.13	0.13	0.12	0.76	0.63
Secondary school degree with apprenticeship	0.06	0.03	0.05	0.00	0.53
Higher education	ref.				
missing 1: no IEB information on partner	0.07	0.06	0.06	0.60	0.58
missing 2: partner education missing in IEB	0.07	0.08	0.08	0.68	0.90
Partner cumulated unempl. duration in last five years					
less than 181 days	0.12	0.13	0.13	0.57	0.72
181 to 360 days	0.06	0.03	0.06	0.00	0.76
more than 360 days	ref.				
Partner cumulated employment duration during last five years					
Partner no empl. spell	ref.				
less than 361 days	0.07	0.07	0.07	0.91	0.89
more than 360 days	0.12	0.13	0.12	0.83	0.79

Table 9 continued
Match quality for covariates – East Germany

Control variables	Averages			P-value of t-test on H_0: no differences between treated and controls	
	Matched Treated	All controls	Matched controls	before matching	after matching
Cumulated employment duration during last five years					
No employment spell	0.38	0.52	0.41	0.00	0.44
less than 181 days			ref.		
181 to 360 days	0.12	0.09	0.12	0.06	0.93
more than 360 days	0.35	0.25	0.34	0.00	0.74
Want to work full-time	0.95	0.93	0.95	0.02	0.91
Last professional status					
No regular employment ever	0.16	0.15	0.18	0.57	0.47
Unskilled worker			ref.		
Skilled-worker	0.23	0.21	0.24	0.33	0.76
White-collar	0.24	0.15	0.24	0.00	0.81
Non-classified	0.11	0.21	0.10	0.00	0.53
Last monthly real wage (deflated with CPI, 2000=100)					
0 Euro <= last salary < 400 Euro			ref.		
400 Euro <= last salary < 1000 Euro	0.15	0.17	0.13	0.19	0.46
1000 Euro <= last salary < 1500 Euro	0.21	0.17	0.20	0.02	0.70
last salary >= 1500 Euro	0.20	0.11	0.20	0.00	0.84
Time since end of last contributory employment					
< 18 months			ref.		
18 to 32 months	0.18	0.12	0.16	0.00	0.53
33 to 45 months	0.10	0.10	0.10	0.86	0.93
more than 45 months	0.30	0.45	0.31	0.00	0.79
Industry of last contributory job					
Primary or secondary sector	0.21	0.20	0.20	0.85	0.84
Trade/transport/communication	0.24	0.12	0.24	0.00	0.96
Public administr., defense, social security agencies	0.07	0.15	0.07	0.00	0.91
Other services	0.21	0.22	0.19	0.64	0.46
No sector information			ref.		
Cumulated unempl. duration during last five years					
0<=since last emp.<18 months			ref.		
18<=since last emp.<32 months	0.58	0.38	0.57	0.00	0.80
33<=since last emp.<45 months	0.19	0.23	0.19	0.03	0.96
since last emp.>=45 months	0.11	0.30	0.11	0.00	0.91
Previous ALMP participation in last five years					
Training	0.44	0.48	0.43	0.05	0.86
Start-up subsidy	0.20	0.10	0.19	0.00	0.60
Public works	0.09	0.27	0.06	0.00	0.26
Regional variables (district level) in January 2005					
Regional unempl. rate	22.60	22.96	22.43	0.03	0.49
Share of long-term unemployment (SLU)	39.25	40.10	39.01	0.00	0.42
%age change of SLU against previous year	25.76	26.28	24.03	0.64	0.30
Vacancy-unemployment ratio	0.01	0.01	0.01	0.03	0.54

Table 10
Treatment effects at 12 and 20 months after programme start for several outcome variables and samples (in percentage points)[1)]

Outcome	unsubsidised contributory employment				neither registered as unemployed nor as job-seeker			
	12th months after programme start		20th months after programme start		12th months after programme start		20th months after programme start	
East Germany	-5.9	***	-8.8	***	34.9	***	21.1	***
West Germany	-8.1	***	-11.4	***	28.2	***	19.6	***
Male	-6.7	***	-10.1	***	30.8	***	20.1	***
Female	-6.0	*	-8.7	**	29.0	***	19.1	***
Age 25-45	-7.9	***	-10.6	***	32.7	***	22.0	***
Education: Secondary or Higher	-6.3	***	-8.6	***	28.2	***	19.8	***
German	-6.4	***	-9.3	***	29.7	***	19.0	***
Foreign	-7.1	***	-13.7	***	31.5	***	21.9	***
Time since end of last regular job is more than 32 months or never regularly employed	-4.4	***	-5.3	***	30.9	***	19.5	***
Time since end of last regular job is less or equal to 32 months	-9.8	***	-16.6	***	28.2	***	17.6	***
Outcome	not registered as unemployed				no receipt of UB II			
	12th months after programme start		20th months after programme start		12th months after programme start		20th months after programme start	
East Germany	45.9	***	31.9	***	8.3	***	11.2	***
West Germany	38.3	***	26.9	***	13.7	***	16.3	***
Male	41.4	***	28.1	***	12.9	***	15.0	***
Female	41.0	***	25.8	***	7.8	*	11.2	**
Age 25-45	41.1	***	29.7	***	13.2	***	16.1	***
Education: Secondary or Higher	40.0	***	28.6	***	10.9	***	13.4	***
German	40.9	***	27.6	***	10.4	***	12.5	***
Foreign	40.4	***	26.0	***	15.6	***	15.0	***
Time since end of last regular job is more than 32 months or never regularly employed	42.8	***	27.6	***	9.9	***	12.6	***
Time since end of last regular job is less or equal to 32 months	35.5	***	22.4	***	12.7	***	12.9	***

* 10% sign. level, ** 5% sign. level, *** 1% sign. level

1) Results from nearest neighbour matching with replacement (five neighbours).

Figure 1
Distribution of the propensity score by gender

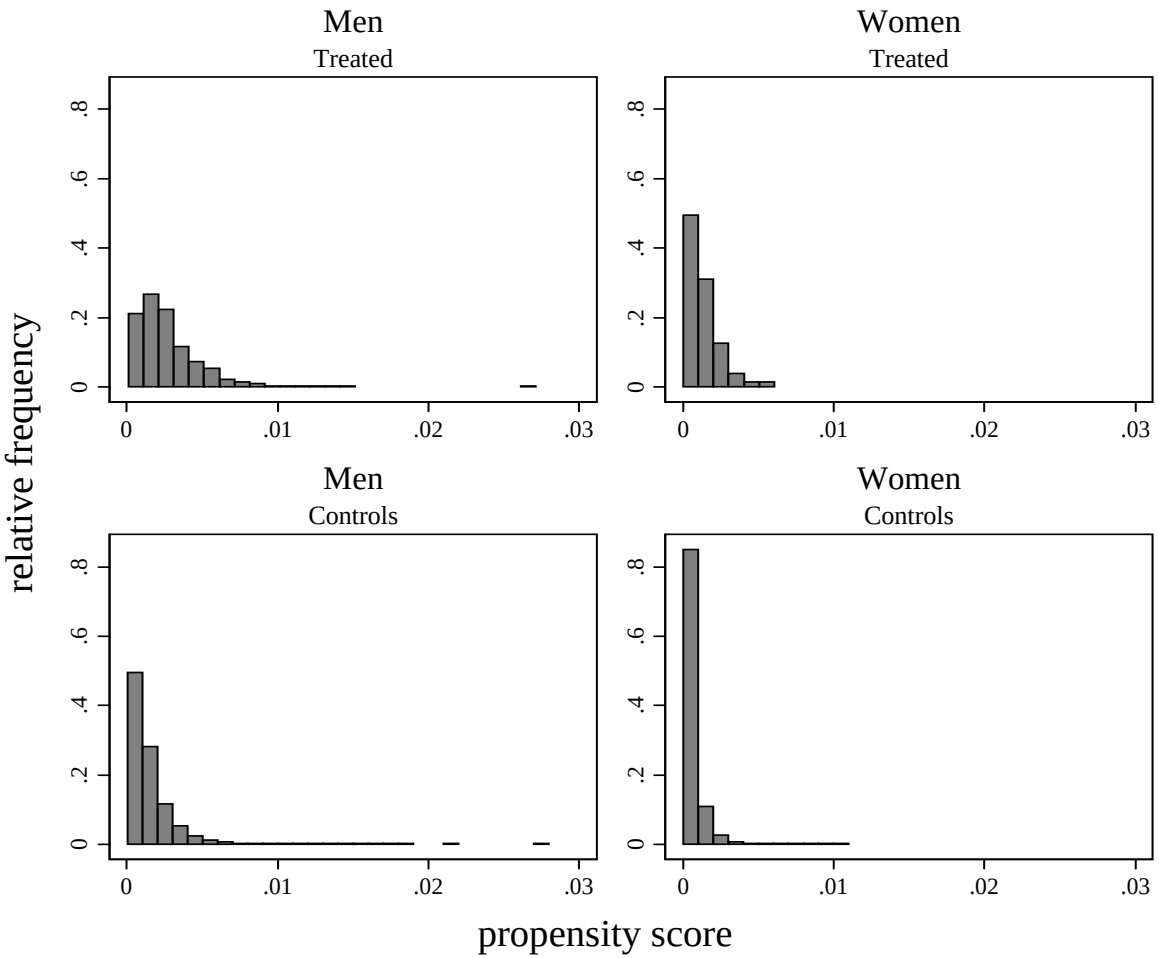


Figure 2
Distribution of the propensity score by region

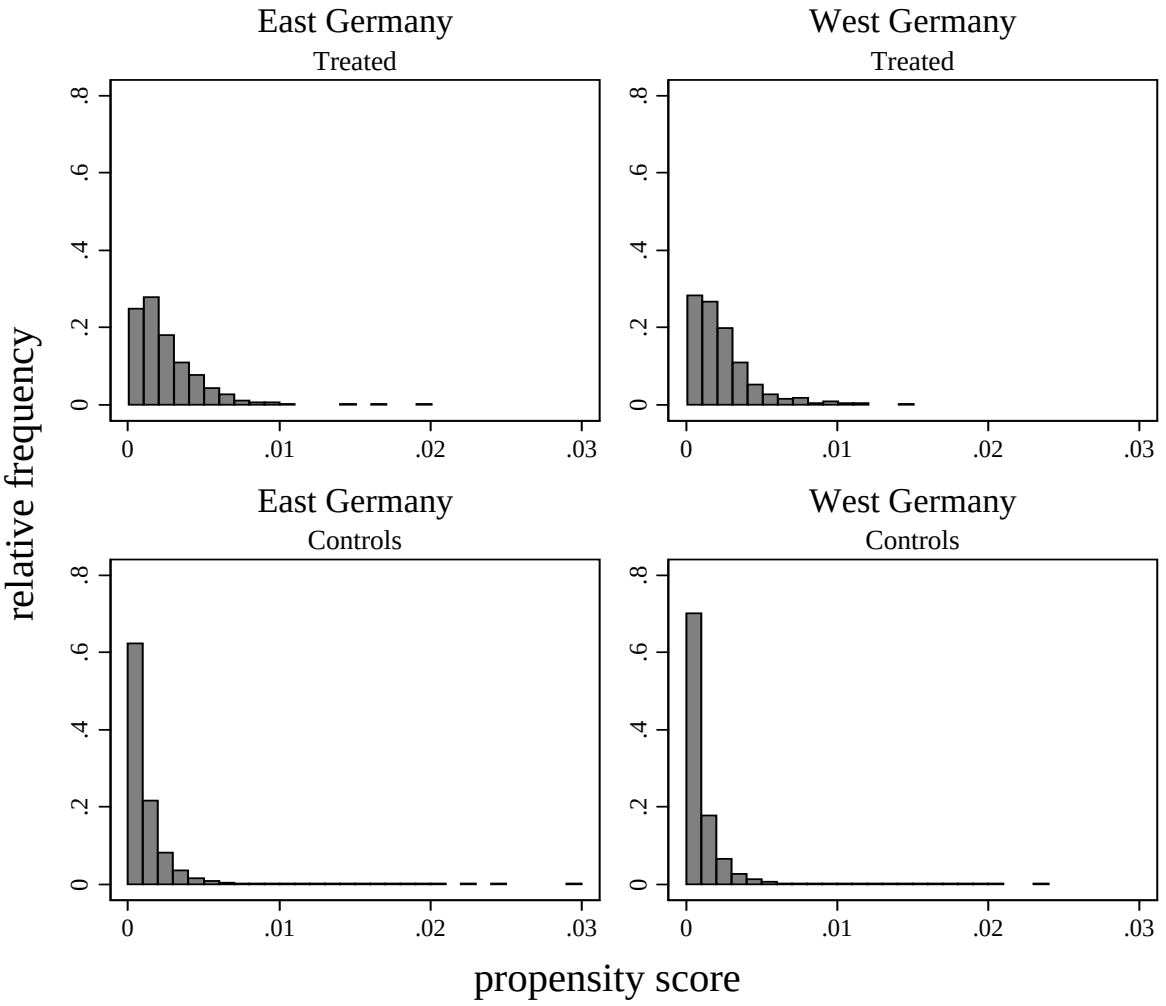


Figure 3
ATT of business start-up programme including 95 percent confidence bands by gender (in percentage points)

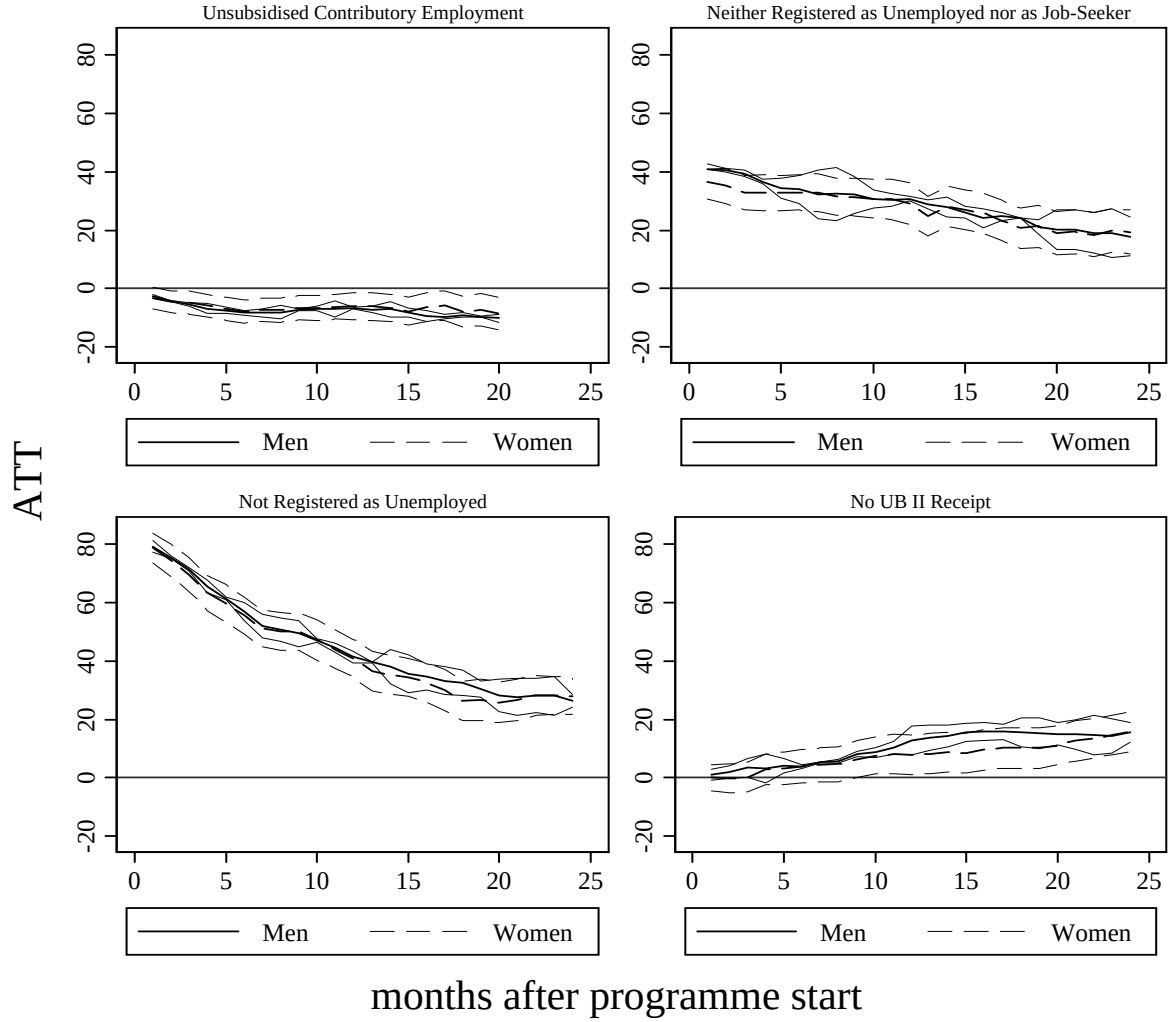
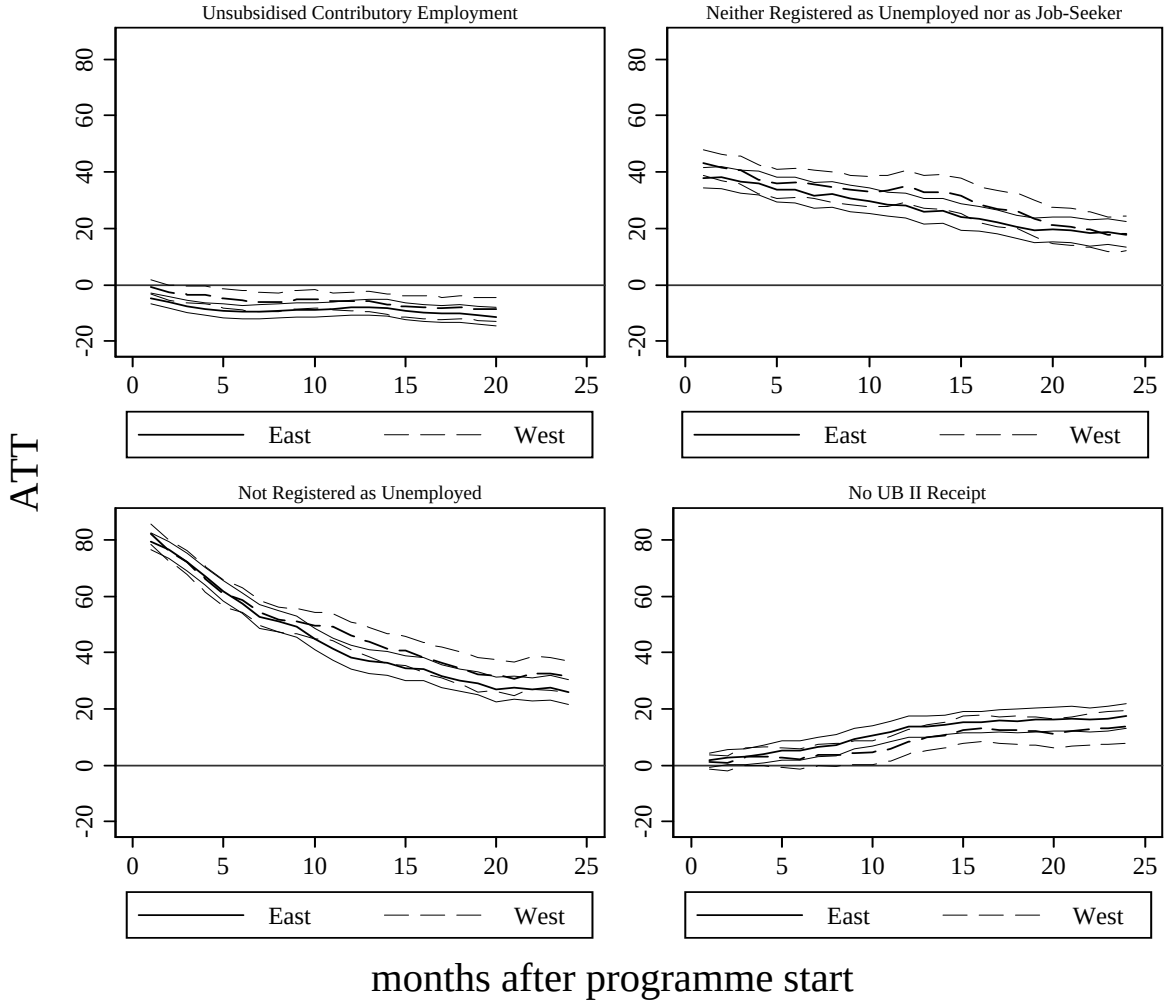


Figure 4
ATT of business start-up programme including 95 percent confidence bands by region (in percentage points)



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